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| 10/015,492 | 12/13/2001 | Viktors Berstis | AUS920011012US1 | 6564 |
| 7590 | 11/03/2004 | | EXAMINER | |
| Robert H. Frantz P.O. Box 23324 Oklahoma City, OK 73123 | | | PERUNGAVOOR, SATHYANARAYA V | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2625 | |

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,492

Applicant(s)

BERSTIS, VIKTORS

Examiner

Sath Perungavoor

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/13/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/13/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/13/2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION***Drawings***

Figures 3a and 3b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct
10 any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next
20 following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 16-20 has been renumbered 15-19.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10 Claims 1,2,4,5,7-13,15,17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Resnikoff et al (U.S. Patent Number 4,574,311).

Regarding claim 1, Resnikoff et al. discloses a method of producing a two-dimensional sensor array for imaging, said method comprising the steps of (Fig. 9b, Col. 4 Lines 22-26 and 35-36, Col. 6 Line 66-Col. 7 Line 1):

determining a plurality of sensor positions, each position having a spacing in a first axis from a datum point according to a first non-uniform distribution schema, and each position having a spacing in a second axis from said datum point according to a second non-uniform distribution schema (Fig. 9b, Col. 5 Lines 45-49, Col. 8 Lines 28-32, Col. 8
20 Lines 21-24; Cited reference discloses the Poisson disc process, which is a non-uniform distribution schema. This schema is applied to both to two axes to determine the position of sensors for a datum point);

providing a two-dimensional array of sensors, each sensor being positioned on said array according to the determined positions in said first and second axes and (Fig. 9b, Col. 4 Lines 22-26 and 35-36, Col. 6 Line 66-Col. 7 Line 1, Col. 5 Lines 45-49, Col. 8 Lines 28-32 and 21-24);

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providing a means for sampling said sensors such that a two dimensional imaging sensor array having non-uniform sensor distribution is realized (Fig. 9b, Fig. 6, Col. 4 Lines 22-26, Col. 7 Lines 25-31, Col. 6 Lines 51-53).

Regarding claim 2, Resnikoff et al. discloses the method as set forth in Claim 1 wherein said first schema comprises a pseudo-random schema (Fig. 9b, Col. 4 Lines 22-26).

10 Regarding claim 4, Resnikoff et al. discloses the method as set forth in Claim 1 further comprising the step of assigning one or more reference identifiers to said first and second non-uniform distribution schema (Fig. 12, Col. 9 Lines 30-55).

Regarding claim 5, Resnikoff et al. discloses the method as set forth in Claim 1 wherein said second schema comprises a pseudo-random schema (Fig. 9b, Col. 4 Lines 22-26).

Regarding claim 7, Resnikoff et al. discloses the method as set forth in Claim 1 further comprising the steps of:
creating a dithered set of data samples by sampling said sensors and (Fig. 6, Col. 7
20 Lines 25-31, Col. 6 Lines 51-53);
performing interpolation to synthesize a set of data samples (Col. 9 Lines 27-29)
representing uniformly spaced data samples from said dithered set of data

samples (Col. 9 Lines 27-29 and 36-40).

Regarding claim 8, Resnikoff et al. discloses the method as set forth in Claim 7 wherein said step of performing interpolation to synthesize a set of data samples representing uniformly spaced data samples comprises performing linear interpolation (Col. 9 Lines 41-46 and Lines 48-52).

Regarding claim 9, Resnikoff et al. discloses a computer readable medium encoded with software for creating a synthesized uniformly-spaced data set from a
10 dithered data set in an imaging system, said software when executed by a processor causing the processor to perform the steps of (Col. 9 Lines 25-29 and 62-68):
receiving a dithered set of data samples and (Col. 9 Lines 25-29)
performing interpolation to synthesize a set of data samples (Col. 9 Lines 62-68)
representing uniformly spaced data samples from said dithered set of data samples
(Col. 9 Lines 25-29 and 62-68; The cited reference discloses a software executed by
the processor with computer readable medium, where it receives the dithered set of
data samples and performs interpolation to synthesize uniformly spaced data samples);

Regarding claim 10, Resnikoff et al. discloses the computer readable medium as
20 set forth in Claim 9 wherein said software for performing interpolation comprises
software for performing linear interpolation (Col. 9 Lines 62-64).

Regarding claim 11, Resnikoff et al. discloses the computer readable medium as set forth in Claim 9 further comprising software for performing the step of receiving a reference identifier associated with distribution schema of said dithered data set, and wherein said software for performing interpolation comprises software for performing interpolation based upon said distribution schema (Fig. 12, Col. 9 Lines 30-68).

Regarding claim 12, Resnikoff et al. discloses a digital imaging system composing: a sensor array means, said sensor array having a set of sensors (Fig. 9b, Col. 4 Lines 22-26)

- 10 arranged in first axis in a non-uniform manner according to a first schema and in a second axis in a non-uniform manner according to a second schema (Fig. 9b, Col. 5 Lines 45-49, Col. 8 Lines 28-32, Col. 8 Lines 21-24; Cited reference discloses the Poisson disc process, which is a non-uniform distribution schema.)
- a sampling means for sampling said sensors and (Fig. 6, Col. 7 Lines 25-31, Col. 6 Lines 51-53);
- a dithered data set creation means for storing data samples from said sampling means (Col. 9 Lines 14-18).

- 20 Regarding claim 13, Resnikoff et al. discloses the digital imaging system as set forth in Claim 12 wherein said sensors of said sensor array means are arranged in said first axis according to a pseudo-random schema (Fig. 9b, Col. 4 Lines 22-26).

Regarding claim 15, Resnikoff et al. discloses the digital imaging system as set forth in Claim 12 wherein said sensors of said sensor array means are arranged in said second axis according to a pseudo-random schema (Fig. 9b, Col. 4 Lines 22-26).

Regarding claim 17, Resnikoff et al. discloses the digital imaging system as set forth in Claim 12 further comprising an interpolation means for synthesizing a uniformly-spaced data sample set from said dithered data sample set (Col. 9 Lines 27-29 and 36-40).

10 Regarding claim 18, Resnikoff et al. discloses the digital imaging system as set forth in Claim 17 wherein said interpolation means comprises a linear interpolation means (Col. 9 Lines 41-46 and 48-52).

Regarding claim 19, Resnikoff et al. discloses the digital imaging system as set forth in Claim 17 further comprising a means for receiving all reference identifier associated with said first and second distribution schema and selecting an interpolation means according to said first and second distribution schema (Fig. 12, Col. 9 Lines 30-55).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10

Claim 3, 6, 14 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Resnikoff et al in view of Tansley (U.S. Patent Number 5,818,977).

Resnikoff et al. discloses that any schema can be used in the arrangement of sensors (Col. 5 Lines 62-64). Though Resnikoff et al. does not expressly disclose the use of a nonlinear polynomial schema.

Tansley discloses a nonlinear polynomial schema to define the sensor characteristics (Col. 2 Lines 50-52 and 62-66)

20 It would have been obvious to one with ordinary skill in the art at the time of invention to combine the teachings of Resnikoff et al. and Tansley such that a nonlinear polynomial schema is realized. Main objective is to avoid moiré effect that becomes apparent at harmonics and a nonlinear polynomial schema would be used provided that requirement of broad spectral or harmonic content is met.

Moreover, Resnikoff et al. clearly states that any schema can be used in the arrangement of sensors. Mere interpretation of old and well-know schema as nonlinear polynomial schema into Resnikoff et al, would have been obvious modification for one of ordinary skill in the art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sath Perungavoor whose telephone number is (703) 306-4116. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta whose telephone number is (703) 308-5246, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Sath Perungavoor

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21 October 2004


YON J. COUSO
PRIMARY EXAMINER